

WHAT IS CLAIMED IS:

- 1 1. A method of making a battery plate comprising:
2 mixing particles of tetrabasic lead sulfate with leady oxide to form
3 a paste material, the particles having an average spherical particle diameter of
4 less than approximately 2.5 micrometers;
5 providing at least a portion of the paste material on a battery grid;
6 and
7 curing the battery grid and paste material at a temperature of less
8 than approximately 48 degrees Celsius to produce a battery plate having a cured
9 paste thereon.
- 1 2. The method of Claim 1 wherein the particles of tetrabasic lead
2 sulfate have an average spherical particle diameter of less than approximately 2
3 micrometers.
- 1 3. The method of Claim 1 wherein the particles of tetrabasic lead sulfate
2 have an average spherical particle diameter of between approximately 1 and 2
3 micrometers.
- 1 4. The method of Claim 1 wherein the curing step is performed at a
2 humidity level of approximately 95%.
- 1 5. The method of Claim 1 wherein the cured paste includes tetrabasic
2 lead sulfate crystals having a thickness of between approximately 2 and 5
3 micrometers.
- 1 6. The method of Claim 1 wherein the curing step is performed at a
2 temperature of between approximately 46 and 48 degrees Celsius.
- 1 7. The method of Claim 1 wherein the step of mixing particles of
2 tetrabasic lead sulfate with leady oxide to form a paste material comprises
3 adding the particles of tetrabasic lead sulfate at a loading level of between
4 approximately 0.1 and 10.0 weight percent to the leady oxide.

1 8. The method of Claim 1 wherein the mixing step is performed at a
2 temperature of less than approximately 60 degrees Celsius.

1 9. The method of Claim 1 further comprising milling tetrabasic lead
2 sulfate to form the particles of tetrabasic lead sulfate before mixing the particles
3 of tetrabasic lead sulfate with the leady oxide.

1 10. A method of making a plate for a battery comprising:
2 mixing particles of tetrabasic lead sulfate having an average
3 spherical particle diameter of less than approximately 2 micrometers with leady
4 oxide to form a paste;
5 coating at least a portion of a battery grid with the paste; and
6 heating the battery grid and paste material at a temperature of less
7 than approximately 48 degrees Celsius to produce a battery plate having a cured
8 paste thereon.

1 11. The method of Claim 10 wherein the particles of tetrabasic lead
2 sulfate have an average spherical particle diameter of approximately 2
3 micrometers.

1 12. The method of Claim 10 wherein the mixing step comprises adding
2 the tetrabasic lead sulfate particles at a loading level of approximately 1 weight
3 percent to the leady oxide.

1 13. The method of Claim 10 wherein the mixing step is performed at a
2 temperature of less than approximately 60 degrees Celsius.

1 14. A method of making a battery comprising:
2 adding tetrabasic lead sulfate particles having an average spherical
3 particle diameter of less than approximately 2.5 micrometers to leady oxide to
4 form a paste material;
5 providing at least a portion of the paste material on a battery grid;

6 curing the battery grid and paste material at a temperature of less
7 than approximately 48 degrees Celsius to form a battery plate having a cured
8 paste thereon;

9 providing the battery plate in a container to produce a battery; and
10 charging the battery.

1 15. The method of Claim 14 wherein the particles of tetrabasic lead
2 sulfate have an average spherical particle diameter of between approximately 1
3 and 2 micrometers.

1 16. The method of Claim 14 wherein the cured paste includes
2 tetrabasic lead sulfate crystals having a thickness of between approximately 2
3 and 5 micrometers.

1 17. The method of Claim 16 wherein the cured paste includes between
2 50 and 60 weight percent tetrabasic lead sulfate crystals after the curing step.

1 18. The method of Claim 14 wherein the curing step is performed at a
2 temperature of between approximately 46 and 48 degrees Celsius.

1 19. The method of Claim 14 wherein the step of mixing particles of
2 tetrabasic lead sulfate with leady oxide to form a paste material comprises
3 adding approximately 1 weight percent of the particles of tetrabasic lead sulfate
4 to the leady oxide.

1 20. The method of Claim 14 wherein the step of charging the battery
2 converts the cured paste to lead dioxide.